

**LOUISIANA TECHNOLOGY INNOVATIONS FUND
POST-COMPLETION PROJECT UPDATE REPORT
31 January 2005**

I. DEPARTMENT / AGENCY

Louisiana State University, Department of Physics and Astronomy

II. PROJECT TITLE

"Training Today's Students for Tomorrow's Internet Work Environment"

III. PROJECT LEADER

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IV. DESCRIPTION OF THE PROJECT

During this project we will develop a system to provide today's school children with experience in using the internet to control, access and operate robotic instruments much in the way that they may in tomorrow's high technology network based work environment. This will include internet control interfaces for the Highland Road Park Observatory telescope, for the ATIC balloon-borne "space" experiment and for a HAM radio satellite communication system. In addition a group of teacher leaders will work with us to develop a curriculum that will provide the context and structure necessary for students to use these internet accessed instruments effectively. During the project we will partner with various community and business organizations such as HAM radio operators, amateur astronomers, Southern University, LaSPACE, and a local television station to provide needed expertise and to enhance the quality of the product. The final products of this project will include a set of operational internet "robots", the materials necessary to train teachers in the use of these devices, the supporting classroom materials to be used by students, and an evaluation of the project effectiveness based upon classroom assessments

V. POST COMPLETION UPDATE

Much of the effort on this project during 2004 has been focused on installing the telescopes scheduled for the Louisiana School for Math, Science and the Arts (LSMSA) in Natchitoches LA and at LIGO in Livingston LA. At LSMSA negotiations between the state, the city of Natchitoches, Northwestern State University and LSMSA on use of the land proposed for the observatory lasted throughout the year until late fall 2004 when an agreement was finally reached. Under this agreement LSMSA will be able to construct the observatory on the proposed site and classes will be allowed access. As of this date we are currently awaiting installation of

electrical power to the site so that construction can begin. We expect the facility to be ready for LSMSA student and internet use roughly two months following construction start.

Negotiations with LIGO on placing the 16" Ritchey-Chrétien Optical Guidance Systems (OGS) telescope at their site also completed during 2004 with the conclusion that LIGO would not be able to support installation of the telescope anytime within the foreseeable future. Consequently, the 16" OGS was removed back to LSU and a search was made for alternate sites. Several options were considered and an offer provided by the BREC park district in East Baton Rouge parish was chosen. In particular, BREC offered to construction a roll-off roof building next to the existing Highland Road Park Observatory (HRPO). This building will be designed for handicap access including a special eyepiece so disabled persons in wheelchairs would be able to look through the telescope. Further, locating the 16" OGS at the HRPO site will simplify maintenance and ease the integration of both telescopes into the remote control system. BREC has already committed building funds to this project and architectural plans are currently being drawn up. We expect to be able to install the 16" OGS in its new housing during 2005.

During 2004 we also received funding from the Space Telescope Science Institute IDEAS program to develop a series of content knowledge astronomy courses to offer at the HRPO. The courses build upon the ROBIE activities and equipment to offer teachers, advanced high school students as well as the general public the ability to improve their knowledge of astronomy. To date, one course in Basic Astronomy has been implemented and is currently being offered, a second course in telescope usage has been implemented and will be offered later during spring 2005 and a course in Advanced Astronomy is currently being developed.

Another result from the ROBIE program is the Mobile Astronomy Resource System (MARS). MARS is a joint program of the LSU Cain Center, LSU Dept. of Physics & Astronomy, BREC and the HRPO and consists of a "high-cube" truck equipped with computer controlled telescopes, a portable planetarium, audio-video equipment, laptop workstations to bring astronomy experiences to rural, underdeveloped and other remote sites. The vehicle is currently being purchased, the telescope equipment is currently available through the ROBIE project and we expect to begin our first MARS remote program during 2005.

VI. PUBLICATIONS, PRESENTATIONS

1. "Space Science Public Outreach at Louisiana State University", T.G. Guzik, E. Babin, W. Cooney, J. Giammanco, D. Hartman, R. McNeil, M. Slovak and J.G. Stacy, *Advances in Space Research* **34**, 2121-2126, (2004)
2. "Empowering Teachers to Address Space Science Content Standards in the Classroom", T.G. Guzik, R. McNeil and E. Babin, *NASA Office of Space Science Education and Public Outreach Conference 2002, ASP Conference Series*, eds. Narasimhan, Beck-Winchatz, Hawkins & Runyon, **319**, 120 – 124, (2004)